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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,878	03/08/2004	Chi-Ming Huang	250913-1150	2105

24504 7590 01/15/2008

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EXAMINER	
UHLENHAKE, JASON S	

ART UNIT	PAPER NUMBER
2853	

MAIL DATE	DELIVERY MODE
01/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/795,878	HUANG ET AL.	
	Examiner	Art Unit	
	Jason Uhlenhake	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11,12,15 and 19-21* is/are pending in the application.

4a) Of the above claim(s) *1-10 and 16-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11,12,15 and 19-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group II: Claims 11-12, 15, and 19-21, drawn to an inkjet print head comprising a heating layer disposed on a substrate to dispense liquid in the reply filed on 11/08/2007 is acknowledged. The traversal is on the ground(s) that the examination of all claims would not impose an undue burden on the examiner. This is not found persuasive because of reasons set forth in the Restriction dated 10/18/2007 and Group I (method for manufacturing; class 29, subclass 611) and Group II (inkjet print head comprising; class 347, subclass 63) would require two different searches because of separate classification, which would put serious burden o the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al (U.S. Pat. 4,596,994) in view of Andrews et al (U.S. Pub. 2004/0085435)

Matsuda discloses:

- ***regarding claim 11,*** a heating layer (2) on the substrate (1); a conductive layer (3) on the substrate, wherein the conductive layer conducts a current to the heating layer, and comprises a stepped portion used as a heating area, wherein the heating area is defined by the conductive layer and the heating layer (Figure 1; Column 4, Lines 36-64)

- a chamber (304) for storing liquid above the heating area, wherein the chamber includes a first side and a second side, the first side is overlapped with the heating area, the second side is connected to the first side, and the chamber is formed with an exit, from which the liquid is dispensed, on the second side (Figures 1, 3; Column 8, Lines 26-59)

Matsuda does not disclose expressly the following:

- ***regarding claim 11,*** a polymer disposed on the substrate; a porous material disposed on the polymer; and a chamber formed by the polymer and porous material, and the liquid flows into the chamber through the porous material

Andrews discloses:

- ***regarding claim 11,*** a polymer disposed on the substrate; a porous material (316) disposed on the polymer; and a chamber formed by the polymer and porous material, and the liquid flows into the chamber through the porous material (Paragraph 0051-0052)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Andrews into the device of

Matsuda, for the purpose of increasing fluid flow through a filter by increasing the surface area of the filter and removing particles in the fluid

Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al (U.S. Pat. 4,596,994) in view of Andrews et al (U.S. Pub. 2004/0085435) and Park et al (U.S. Pat. 6,702,428).

Matsuda discloses:

- ***regarding claim 19,*** a heating layer (2) on the substrate (1); a conductive layer (3) on the substrate, wherein the conductive layer conducts a current to the heating layer, and comprises a stepped portion used as a heating area, wherein the heating area is defined by the conductive layer and the heating layer (Figure 1; Column 4, Lines 36-64)

- an adhesive layer disposed on the conductive layer (Column 8, Lines 40-44)

- a chamber (304) for storing liquid above the heating area, wherein the chamber includes a first side and a second side, the first side is overlapped with the heating area, the second side is connected to the first side, and the chamber is formed with an exit, from which the liquid is dispensed, on the second side (Figures 1, 3; Column 8, Lines 26-59)

- ***regarding claim 20,*** a substrate (1); a heating layer (2) disposed on the substrate to dispense liquid

- a conductive layer disposed on the substrate to conduct a current to the heating layer, wherein the conductive layer comprises a stepped portion used as a heating area, wherein the heating area is defined by the conductive layer and the heating layer (Figure 1; Column 4, Lines 36-64)

- a metallic layer (401) disposed on the substrate; a chamber (304), formed by the metallic layer, having a first side and a second side, wherein the first side is overlapped with the heating area, the second side is connected to the first side, and the chamber is formed with an exit, from which the liquid is dispensed, on the second side, and the liquid flows into the chamber through the porous material (Figures 1, 3; Column 8, Lines 26-59)

- ***regarding claim 21,*** an adhesive layer disposed between the metallic layer and the porous material (Column 8, Lines 40-44)

Matsuda does not disclose expressly the following:

- ***regarding claims 19,*** the porous material on the chamber so that the liquid flows into the chamber therethrough; a nozzle plate disposed on the second side of the chamber, including at least one orifice

- ***regarding claim 20,*** a porous material disposed on the metallic layer

Andrews discloses:

- ***regarding claims 19,*** the porous material (316) on the chamber (124) so that the liquid flows into the chamber therethrough (Figure 4; Abstract, Paragraphs 0051-52), for the purpose of increasing fluid flow through a filter by increasing the surface area of the filter and removing particles in the fluid

- ***regarding claim 20,*** a porous material disposed on the metallic layer (Figure 4; Abstract, Paragraphs 0051-52), for the purpose of increasing fluid flow through a filter by increasing the surface area of the filter and removing particles in the fluid

Park discloses:

- ***regarding claim 19,*** a nozzle plate disposed on the second side of the chamber, including at least one orifice (Column 7, Lines 20-25), for the purpose of improving print performances such as a traveling property in a straight direction of ink droplets and ejection velocity of ink droplets (Abstract)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Andrews and Park into the device of Matsuda, for the purpose of increasing fluid flow through a filter by increasing the surface area of the filter and removing particles in the fluid and improving print performances such as a traveling property in a straight direction of ink droplets and ejection velocity of ink droplets (Park: Abstract)

Claims 12, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al (U.S. Pat. 4,596,994) as modified by Andrews et al (U.S. Pub. 2004/0085435) as applied to claim 1 above, and further in view of Park et al (U.S. Pat. 6,702,428).

Matsuda as modified by Andrews discloses all of the claimed limitations except for the following:

- ***regarding claim 12,*** wherein the chamber is light-sensitive polymer

- ***regarding claim 15,*** a nozzle plate disposed on the second side of the chamber

Park et al discloses:

- ***regarding claim 12,*** wherein the chamber is light-sensitive polymer (Column 6, Lines 50 – 67; Column 7, Lines 1 – 10), for the purpose of preventing delamination and improving ejection characteristics of the ink droplets.

- ***regarding claim 15,*** a nozzle plate disposed on the second side of the chamber Column 7, Lines 20-25), for the purpose of improving print performances such as a traveling property in a straight direction of ink droplets and ejection velocity of ink droplets (Abstract)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Park et al into the device of Matsuda as modified by Andrews, for the purpose of preventing delamination and improving the ejection characteristics of the ink droplets.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Uhlenhake whose telephone number is (571) 272-5916. The examiner can normally be reached on Monday-Friday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JSU
January 9, 2008

JULIAN D. HUFFMAN
PRIMARY EXAMINER
1/14/08